Michigan
Coastal and Estuarine
Land Conservation Plan

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Michigan Department of Environmental Quality
Coastal Zone Management Program

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List of Acronyms

BIA: Biodiversity Investment Area
CELC Plan: Coastal and Estuarine Land Conservation Plan
CELCP: Coastal and Estuarine Land Conservation Program
CLMU: Coastal and Land Management Program Unit of the Michigan Department of Environmental Quality
CZMA: Coastal Zone Management Act of 1972
DEQ: Michigan Department of Environmental Quality
DNR: Michigan Department of Natural Resources
FEMA: Federal Emergency Management Agency
FLP: Forest Legacy Program
GIS: Geographic Information Systems
GLRC: Great Lakes Regional Collaboration
MNFI: Michigan Natural Features Inventory
NAWMP: North American Waterfowl Management Plan
NERR: National Estuarine Research Reserve
NOAA: National Oceanic and Atmospheric Administration
NREPA: Michigan Natural Resources and Environmental Protection Act, 1994, PA 451, as amended
SOLEC: State of the Lakes Ecosystem Conference
TNC: The Nature Conservancy
USDA: United States Department of Agriculture
USEPA: United States Environmental Protection Agency

I. Introduction

With approximately 3,921 miles of Great Lakes shore, Michigan has the longest coast line of any state in the continental U.S. Four of the five Great Lakes shape the state's shores and provide the largest source of fresh water in the world. Michigan's coast is home to many threatened and endangered plant and animal species, as well as numerous rare natural communities. The shoreline is defined by the many diverse landforms that developed during historic glacier coverage and sediment transport processes. Differences in shoreline substrate, slope, and drainage characteristics dictate the ongoing effect exposure to the lakes' wind and wave action has on the shoreline, and the subsequent development of wetlands, beaches, exposed bedrock shores and other geomorphic features. The geological history of the area makes the coast unique and diverse and its beauty attracts thousands of tourists every year, contributing to Michigan's most important industry.

Unfortunately, development pressure over the past 150 years has impacted many of Michigan's most important coastal regions. Much of the shoreline was converted to agricultural uses as European settlers arrived, and subsequently many of these areas were converted to residential communities and commercial development as Michigan's population grew. These changes have brought about significant loss and fragmentation of habitat for many organisms, and have contributed to water quality problems throughout the Great Lakes region. Today, development pressures continue to threaten Michigan's coastline, and as the state loses more of this valuable resource, the importance of preserving and managing high quality coastal systems becomes increasingly critical. Approximately 80% of the coast is currently within private ownership. Thus, the State of Michigan is currently pursuing all means of protecting its coastal areas. With the preparation of this plan, Michigan hopes to work with local governments, resource conservation groups and private organizations to gain additional protection for its coastal areas.

a. Program background and federal requirements

In 2002, the Department of Commerce, Justice and State Appropriations directed the Secretary of Commerce to establish a Coastal and Estuarine Land Conservation Program (CELCP) under Public Law 107-77. The program was established to pass funding to eligible coastal states "for the purpose of protecting important coastal and estuarine areas that have significant conservation, recreation, ecological, historical or aesthetic values, or that are threatened by conversion from their natural or recreational state to other uses." The law further specified that priority should be given to lands which can be effectively managed and protected, and that have significant ecological value.

The CELCP is administered by the National Oceanic and Atmospheric Administration (NOAA). Each state wishing to participate in this program must have an approved coastal zone management program developed under the Coastal Zone Management Act

of 1972 (CZMA). Each state must also develop a Coastal and Estuarine Land Conservation Plan, (CELC Plan) in accordance with the final guidelines for plan preparation, issued by NOAA in June 2003. CELCP projects must directly advance the goals, objectives or implementation of the state's coastal management program, National Estuarine Research Reserve (NERR) management plans approved under the CZMA, national objectives of the CZMA, or a regional or state watershed protection plan involving coastal states with approved coastal management plans.

CELCP projects will be selected through a competitive process at the state level. Up to three projects may be selected each year for federal competition. Federal CELCP funds must be matched with non-federal funds at a ratio of 1:1. All project areas must be held in public ownership (fee simple or conservation easements), provide preservation in perpetuity and allow access to the general public or provide another public benefit, as appropriate and consistent with resource protection. Projects must also be consistent with the state's approved coastal management program, which, in Michigan, is administered by the Coastal and Land Management Program Unit (CLMU) of the Department of Environmental Quality (DEQ).

b. Purpose and goals of Michigan's CELC plan

The purpose of Michigan's CELC plan is to:

- Encourage working partnerships among the public, non-profit groups such as land conservancies, private organizations, and state and local governments
- Provide effective support for coastal preservation and restoration projects in Michigan
- Ensure that high priority coastal protection projects are effectively funded
- Consolidate existing conservation efforts and planning strategies

The goals of Michigan's CELC plan are to:

- Protect high quality, sensitive coastal areas
- Protect rare and threatened species and natural communities
- Maintain biodiversity and protect the coastal natural communities necessary to support diversity
- Maintain Michigan's cultural heritage
- Fulfill recreational needs
- Utilize previously created conservation and management plans to identify projects that are eligible for funding
- Ensure lands acquired under this program are effectively managed.

Michigan's CELC plan was developed through a collaboration of various state, local and non-profit partners to achieve the common goal of preserving and managing Michigan's high quality, sensitive coastal ecosystems.

Consistent with NOAA guidelines, this plan:

- Describes the geographic extent of Michigan's CELC boundary

- Provides an assessment of priority conservation needs
- Identifies clear guidance for Michigan's project nomination and selection process.

II. Priorities for Coastal and Estuarine Protection

a. Geographic extent of Michigan's coastal and estuarine areas

The CELCP Federal Guidelines define coastal and estuarine areas as:

> "Those areas within a coastal state that are: part of the state's coastal zone, as designated in the state's federally approved coastal management program under the CZMA, or within the state's federally approved coastal watershed boundary as described in NOAA's Coastal Zone Boundary Review (October 1992). The coastal watershed boundary is defined for estuarine drainage areas by the inland boundary of those 8-digit USGS hydrologic cataloguing units that contain the head of a tide and; for the Great Lakes region ... by those cataloging units that are located adjacent to the coast"

In designating the CELCP boundary for Michigan, resource managers determined the geographic extent of the boundaries should be broad and inclusive, making as many high quality sites as possible eligible, while still focusing on the critical nearshore coastal reaches of the Great Lakes. Thus, Michigan's CELCP boundary includes all townships within all coastal counties, with the exception of those townships that are not lakeward of the coastal 8-digit USGS hydrologic cataloguing units and/or are not within Michigan's coastal non-point source program management area (Figure 1). More specifically, Michigan's CELCP boundary is defined as all political townships in all coastal counties with the exception of the following townships within the following counties: **Alcona County:** Mitchell Township, **Allegan County:** Gun Plain and Otsego Townships, **Alpena County:** Green, Long Rapids and Wellington Townships, **Baraga County:** Covington Township, **Berrien County:** Berrien and Niles Townships, **Cheboygan County:** Aloha, Burt, Ellis, Forest, Koehler, Mentor, Mullett, Nunda, Tuscarora, Walker, Waverly and Wilmot Townships, **Emmet County:** Littlefield, Maple River and McKinley Townships, **Gogebic County:** Watersmeet Township, **Sanilac County:** Evergreen, Lamotte and Marlette Townships, **Tuscola County:** Arbela, Dayton, Fremont, Kingston, Koylton, Millington, Novesta, Vassar, Watertown and Wells Townships, **Van Buren County:** Decatur and Porter Townships.

This boundary includes the state's entire coastal zone management boundary as determined when the coastal zone management program was approved in 1978. Michigan's CELC area drains 32,870 square miles, through over 70 major watershed drainage basins into the Great Lakes (Lakes Superior, Michigan, Huron and Erie) and the Great Lakes Connecting Channels (the St. Mary's, St. Clair and Detroit Rivers). Within these boundaries are two National Lakeshores (Sleeping Bear and Pictured Rocks), the

Thunder Bay National Marine Underwater Sanctuary, hundreds of islands, over 60 shoreline state parks, more than 50 State Wildlife, Game or Wildlife Research Areas, many county and township parks, all the state's commercial and recreational harbors, over 35 ports, the U.S. side of the Detroit River International Wildlife Refuge, numerous federal wildlife refuges, all of the state's designated Environmental Areas, critical dunes and high risk erosion areas, and parts of several state and national forests. Although located within the CELCP boundaries, federally owned lands are excluded from this program, as these areas are ineligible to receive federal funding. However, there may be important acquisition areas adjacent to these properties that are eligible for this program.

b. Types of lands to be protected and the need for conservation of these resources

The ecological, commercial and cultural importance of the Great Lakes region has made it an attractive area for a wide range of ecological research. This research has led to the development of numerous broad scale conservation identification programs, strategies and plans throughout the basin over the past 30 years. Some of these, such as TNC's *Binational Conservation Blueprint for the Great Lakes* were developed for the purpose of protecting specific areas that have been found to be ecologically essential to the Great Lakes. Others, such as *Michigan's Wetland Conservation Strategy* identify areas that have been drastically impacted by human activities and are important restoration areas. Still others, such as the *Michigan Wetland Inventory Maps*, drafted pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA), were prepared for regulatory purposes and identify features of Michigan's coast line on a much broader scale. Plans that cover areas of Michigan's coast line have been incorporated into this document and are described in more detail in the "Plan Description" section of this document.

Because of the numerous assessments of conservation needs that have already been completed throughout the state, Michigan's CELC plan does not seek to redefine or reassess priority conservation needs within the state. Rather, this document combines existing strategies into a cohesive and comprehensive reference. The Michigan CELC plan is designed to allow communities to assess individual conservation needs at a local level. By taking this approach, the overall goals of protecting natural resources, preserving ecological functions and maintaining the cultural heritage of Michigan's coast are more likely to be achieved.

Based on existing conservation needs assessments and plans as well as the NOAA guidelines, Michigan has found that lands with the following values are high priority:

1.) Lands with conservation and ecological value

> The geological history of the state and fluctuating Great Lakes water levels have contributed to the rich species and habitat diversity of Michigan's coast line. Protection of these areas is essential to maintaining the biological integrity of the coastal ecosystem. Areas with high ecological value are typified by the presence

of high quality native communities and natural habitats. Native communities unique to the Great Lakes coast line include a diverse mix of habitat types, such as lake plain prairie and oak openings, dune and swale complexes, open sand dunes, freshwater estuaries, drowned river mouth lakes, alvar grasslands, bedrock lakeshores and Great Lakes marsh. Many of these areas also provide critical nesting habitat, serve as migratory bird flyways or act as important fish spawning habitats. A number of these types of areas have also been identified as habitats for state or federally designated threatened and endangered plant and animal species such as piping plover (*Charadrius melodus)*, Hine's emerald dragonfly (*Somatochlora hineana*),lake sturgeon (*Acipenser fulvesvens*), black tern (*Chlidonias niger*), dwarf lake iris (*Iris lacustris*), and pitcher's thistle (*Cirsium pitcheri*)

Habitats that support critical fish spawning territories or migratory bird flyways also have great ecological value. In the Great Lakes, more than 50% of the 120 fish species residing in the lakes rely on coastal wetlands for spawning or other portions of their life cycle. Important game species such as salmon, walleye and northern pike spawn in the thousands of rivers and streams that drain to the lakes. Michigan's coastline serves as stopover and nesting habitat for a wide variety of avian migrants including shorebirds, raptors, waterfowl and songbirds. Conversion and filling of wetland, dam construction, large scale dredging projects, non-point source pollution, and an influx of aggressive invasive species threaten to compromise fisheries and migrating bird success.

Areas with high conservation value include keystone acquisition areas within larger conservation plans (including state and federal project areas), as well as areas that have links to water quality maintenance and/or are high in biological diversity. These lands may include hubs and corridors of greenways, Federally designated Wild and Scenic Rivers or State designated Natural Rivers, watershed conservation or planning areas, 100 year flood plains (FEMA), coastal hazard areas such as high risk erosion areas and critical dunes, buffer lands around already protected areas, state designated Environmental Areas or wetlands identified by the National or State wetland inventories. Former Great Lakes coastal wetlands or lake plain prairies that are now agricultural lands with the potential of restoration also exhibit this value.

Protection and management of lands high in ecological and conservation value leads to the preservation and/or restoration of essential ecosystem functions and natural processes such as sediment transport, nutrient assimilation, dune formation and flood water storage.

2.) Recreational value

Approximately 80% of Michigan's shoreline is held in private ownership, which limits public access to the lakes. This is a significant problem, especially since tourism has taken over manufacturing as the most important contributor to

Michigan's economy. Many key tourist attractions in Michigan are located on the coast. Areas that exhibit high recreational value have significant opportunity for public access to coastal resources and opportunities for low impact outdoor activities such as hiking, wildlife viewing, swimming, fishing, and beach walking. In cases where local populations will not be negatively impacted, or where wildlife is managed, hunting and trapping may also be considered low impact recreation. Coastal areas that are used or will be used for higher impact recreation (snowmobiling, camping, mountain biking, ATV use, etc.) are not eligible for funding under CELCP.

Similar to lands with high conservation and ecological value, public access to the lakes is threatened by the ongoing trend of increasing residential and commercial development of the shoreline.

3.) Cultural and Historic Value

The primary focus of Michigan's CELC plan is to preserve lands with high ecological and conservation value; however, many areas that exhibit these qualities may also have significant cultural and historic value. Over 150 years ago, Michigan's coast was home to many of the region's Native American tribes. Many coastal areas containing important archeological artifacts left behind by these civilizations have not yet been preserved. These types of lands may include burial grounds, spiritual and religious sites, or areas used for customary gatherings. Similarly, most of the state's original European traders and farmers chose to establish their permanent homes along Michigan's coast lines. These landmarks may also contain significant cultural features. The rich traditions of these tribes and early settlers have significantly contributed to Michigan's cultural character.

Some areas with these values may be listed on the National or State Register of Historic Places, which is the country's official list of cultural resources worthy of preservation (National Historic Preservation Act of 1966). Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The National Register is administered by the National Park Service, which is part of the U.S. Department of the Interior. Currently Michigan has over 3,500 such designations, but the majority of these sites are on private property and cannot be accessed by the public. Because of the prominence of historic landmarks along the coast line, it may be possible to preserve lands with these types of values in conjunction with other natural resources based projects.

4.) Aesthetic Value

> Many tourists travel to Michigan every year to experience the beautiful sunsets, scenic vistas, long sand beaches, diverse freshwater marshes and rocky outcroppings associated with the Great Lakes shoreline. Since properties with unobstructed views of the Great Lakes are in great demand for private development, protecting these areas is important to maintaining Michigan's coastal economy. While not the primary focus of this plan, protection of aesthetically pleasing areas of Michigan's coastline may easily be accomplished concurrently with other higher priority projects since Michigan's rarest habitats are also its most beautiful.

In addition to the above values, Michigan places a high priority on lands that will be effectively managed. Projects have a higher likelihood of success when long term monitoring and management of factors such as influx of invasive species, natural or human-induced disturbances and land use surrounding high quality areas is conducted. Michigan will give priority to CELC projects that are coordinated with other federal, state and local conservation planning initiatives to ensure that lands preserved under CELCP maintain the values for which they were protected.

The priorities listed above become more important as threats to coastal resources grow. Michigan's coastal counties are some of the State's most densely populated, resulting in a disproportionate threat of impacts caused by urban sprawl. The 41 counties at least partly within Michigan's proposed CELCP area have a total population of 4,883,856 residents, based on 2004 population estimates prepared by Michigan's State Demographer. Approximately 98% of those residents are located within the CELCP boundary. (See Appendix A for a table of population numbers and trends) Collectively, Michigan's coastal counties saw a 0.9% increase in population between the 2000 federal census and the 2004 population estimates. This figure represents half of the state's overall population growth for that time period.

These changes in population lead to additional threat of urban sprawl. Recent studies conducted by the Michigan Land Resource Project developed population trend projections for the years 2020 and 2040. These studies indicated that sprawl will transform the landscape throughout much of the southern Lower Peninsula and many areas of the northwest Lower Peninsula. Trends such as these will tend to break up large tracts of Lower Peninsula forest and other habitats into smaller fragmented and isolated patches (Public Sector Consultants, 2001).

In addition to residential sprawl, there has been enormous growth in the numbers of seasonal and vacation homes along Michigan's coasts. Recently, the U.S. Forest Service North Central Research Station examined patterns of seasonal home development as part of the Landscape Change Integrated Program. They found that the number of seasonal homes in Michigan increased by more than 157,000 since 1980. If one assumes that the average new seasonal dwelling was built on a 0.5-acre, previously undeveloped site, then approximately 78,500 acres was converted to seasonal home use in the twenty year period (Potts *et al.,* 2004). The land fragmentation caused by land splitting, residential

development, and vacation home development often disrupts natural wildlife corridors, leading to isolated gene pools and unhealthy wildlife populations. In addition, some shoreline property owners wish to maintain their coastal parcel as a sandy beach, and will actively groom substrates and remove vegetation. These types of activities are known to adversely affect invertebrate and fish populations, water chemistry and plant root biomass (Albert 2005, Uzarski et al. 2005).

As urban sprawl moves around the coast line, Michigan loses more of its coastal area. Coastal wetlands are lost due to filling, dredging and draining, buffers are removed from streams, invasive plants crowd out native Michigan species, and non-point source pollution disrupts high quality habitat. In other non-urbanized areas of the state, recreational impacts such as the use of all-terrain vehicles and snowmobiles, poaching, construction of marinas, boat traffic, and overuse of sand dune beaches are taking a toll on coastal resources. Still other activities such as indiscriminant, unmanaged logging and mineral extraction activities threaten the character of Michigan's coast. Through the CELCP, Michigan hopes to ensure the highest quality coastal resources are not impacted by these ongoing threats.

c. "Project Areas" that represent Michigan's priority areas for conservation

The CELCP Federal Guidelines describe Project Areas as:

> "Discrete areas to be identified within a CELC plan that describe the state's priority areas for conservation based on national and state criteria, representing the values to be protected through the program and areas threatened by conversion. Project areas may consist, for example, of geographic areas of habitat types identified by a state coastal management plan as areas of concern; significant areas within other coastal, estuarine, or watershed management plans that may be priority areas for conservation; or areas that provide linkages or corridors among conservation areas within a geographical area."

In this section, we discuss and identify project areas that represent Michigan's priority areas for conservation, including areas threatened by conversion, based on state and national criteria for the program. The national criteria states that all nominated projects must:

- Protect important coastal and estuarine areas that have the above described values or that are threatened by conversion
- Give priority to lands that can be effectively managed and protected and that have significant ecological value
- Directly advance the goals, objectives or implementation of the state's coastal management plan or program, NERR management plans approved under the CZMA, national objectives of the CZMA, or a regional or state watershed protection plan involving coastal states with approved coastal management plans

- Be consistent with the state's approved coastal management program

Thus, in order to ensure compliance with these guidelines, Michigan's priority project areas are primarily based on the "Areas of Particular Concern" identified by the *State of Michigan Coastal Management Program and Final Impact Statement* of 1978. These areas include high risk erosion areas, ecologically sensitive areas, natural areas (managed and unmanaged), recreation areas, and coastal lakes, river mouths and bays. In particular, the following types of lands will be considered priority areas during Michigan's review of CELCP proposals:

- Lands designated as Environmental Areas under Part 323, Shorelands Protection and Management, of the NREPA (Figure 2)

- State and globally imperiled natural communities (ranked S1-S3 and G1- G3) identified by MNFI (Appendix B, Figure 3)

- Coastal areas of federally designated Wild and Scenic Rivers under (16 USC 1271-1287) -- Public Law 90-542, and state designated Natural Rivers under Part 305, the Natural Rivers Act, of the NREPA (Figure 4)

- Lands designated as critical dunes under Part 353, Sand Dunes Protection and Management, of the NREPA (Figure 5)

- Lands designated as high risk erosion areas under Part 323, Shorelands Protection and Management, of the NREPA (Figure 6)

- Sites identified as Biological Investment Areas (BIAs) by the State of the Lakes Ecosystem Conference (SOLEC) (Figures 7-18)

- Sites identified by TNC's *Binational Blueprint for the Conservation of Great Lakes Biodiversity* (Figure 19, Appendix C)

- Lands adjacent to and within project boundaries of existing state and federally managed park lands, wildlife areas, game areas, wildlife research areas, forests, and shorelines (Figure 20, Appendix D)

All of these types of project areas would likely meet the CZMA criteria for listing as areas of particular concern. Although other projects that are not proposed in Michigan's priority project areas will be considered for CELCP funding nominations, the projects consistent with the above areas will take precedence. The figures associated with the project areas listed above show representative locations where Michigan's priority project areas are concentrated, and do not identify specific parcels or tracts of land that should be acquired. For example, figures 8-19 show approximate areas that have been identified by SOLEC as known areas of high biodiversity. More detailed studies will be necessary to

determine if the individual parcels within these BIAs contain values appropriate for acquisition under CELCP. The CLMU is in the process of developing a Geographic Information System (GIS) database with layers depicting the boundaries of Michigan's priority project areas and any additional layers that were developed as a part of the plans incorporated by reference into this document. This database will serve as an important decision making tool for electing grant applications for competition at the federal level. Projects that overlap with one or more of these layers will receive higher ranking scores at the state level.

d. Descriptions of existing plans, or elements thereof that are incorporated into this plan

As mentioned above, a wide variety of conservation strategies and plans identifying conservation priorities and ecological needs have been developed in recent years throughout Michigan. Due to similarities in the criteria used to identify high quality coastal areas, the lands identified in various plans often overlap with each other and with Michigan's above described priority areas. Many of these have been incorporated by reference into Michigan's CELC plan and are briefly described in Appendices E and F. All plans of these plans were developed with outside expertise and/or public input, and any of them may be used to identify projects eligible for CELCP funding. However, in determining priority values, land types and areas to incorporate into this CELC plan, Michigan found several plans that best overlapped with our assessment of the types of lands that need to be acquired and our priority areas, as described above. The following plans identified areas with high conservation and ecological value throughout the coastal areas of the entire state, and were produced with public review and outside expertise. These plans provide the primary basis for Michigan's CELC Program.

- The Nature Conservancy, *Towards a New Conservation Vision for the Great Lakes Region, a Second Iteration*

  In this broad scope publication, TNC used a systematic, science based approach to identify 271 sites that capture the biodiversity of the Great Lakes ecoregion. Ecoregions are large areas of similar climate and geology, where assemblages of natural communities and species recur in predictable patterns. The Great Lakes ecoregion, one of 64 distinct ecoregions in the continental United States (Robert Baily, 1980), incorporates approximately 234,000 square miles of the United States and Canada. TNC's conservation targets were globally rare species, all natural community types, and all aquatic system types in the Great Lakes watershed. The list included 481 target species and natural communities, and 231 aquatic systems (Appendix C). Experts also considered the number and distribution of each target area type that would be needed to preserve complete biodiversity of the ecoregion. The long term viability of each population or community type was assessed before an area was included as a priority conservation site. Finally, the primary threats to conservation were analyzed for

each of the Great Lakes States. In Michigan, development, recreation, invasion of exotic species and hydrologic alterations were the top threats to biodiversity.

Michigan is home to 135 of the 271 identified sites. Of those 135 sites, 71 were considered by TNC to be irreplaceable. Forty-one of the irreplaceable sites were considered to be priority conservation areas that need to be purchased before 2012 due to threats from development, recreation, exotic/invasive species and hydrologic alteration. TNC partnered with numerous organizations, public agencies, academic institutions and individuals to identify these sites (Appendix G).

The development of *Towards a New Conservation Vision for the Great Lakes Region* was used in conjunction with TNC Canada's publications, *Great Lakes Conservation Blueprint for Aquatic Biodiversity* and *Great Lakes Conservation Blueprint for Terrestrial Biodiversity* to develop a *Binational Blueprint* for the entire ecoregion. The map is included in this document as Figure 19. Although Canada's publications do not list sites specific to Michigan's shoreline, they are a helpful outline of how lands can be portioned off to set priorities for preservation. The plans used a series of coarse filter (ecological systems) and fine filter (species and vegetation communities of conservation concern) targets, and analyzed aspects such as rarity, distribution, and disturbance regimes to evaluate biodiversity targets and conservation goals.

- Michigan Department of Natural Resources, *Michigan's Forest Legacy Program Assessment of Need*

The goal of the Forest Legacy Program (FLP) is to protect privately owned and environmentally sensitive forests of Michigan from conversion to non-forest uses. This program, which is administered by the U.S. Department of Agriculture (USDA) Forest Service, is very similar to the CELCP in that it provides funds for permanent protection of ecologically important and sensitive areas. Any state choosing to participate in the FLP is required to submit an *Assessment of Needs* report to the USDA's Forest Service Secretary, which establishes eligibility criteria and recommends FLP sites. Michigan's FLP report compiled valuable information including forest and shrub cover types, regional landscape ecosystems, scenic areas, forest community types, density of globally imperiled plants and animals (Figure 3), outstanding geologic features, economic dependence on forest and wild land resources, and existing public lands.

Based on the compilation of this information, the DNR proposed FLP areas for 5 sections of the state (Figures 21-25). The FLP areas are broadly defined and include large tracts of land that are non-forested or are already publicly owned. The privately owned, forested lands within the boundaries of the broader areas are those lands that would qualify for funding under the FLP.

The *Assessment of Needs* report was developed in conjunction with the public and numerous partners, including TNC, USDA Forest Service and MNFI. A significant number of the land types identified in the plan as conservation priorities are within the CELC boundaries and may be eligible for CELCP funds.

- State of the Lakes Ecosystem Conference, *Biodiversity Investment Areas*

  Every two years, SOLEC Conferences are hosted by the U.S. Environmental Protection Agency (USEPA) and Environment Canada to help fulfill the reporting requirements of the *Great Lakes Water Quality Agreement*. The purpose of the conferences is to allow a wide range of scientists, governments, non-profit groups and private organizations that make decisions affecting the Great Lakes to gather for information sharing. At SOLEC 1996, a new paper introduced the idea that certain sections of the Great Lakes shoreline have extremely high ecological value and need to be the focal points of protection efforts. These areas were called Biodiversity Investment Areas (BIAs). By SOLEC 2000, three descriptive BIA reports had been produced for nearshore terrestrial, aquatic, and coastal wetland systems. Numerous partners were involved in the development of these documents (Appendix H).

  Development of the terrestrial BIAs was based on the background paper prepared for SOLEC 1996 (Reid and Holland, 1997). Nineteen areas were identified as locations that were vital areas for the preservation of biodiversity. Eight of these were located in Michigan, including the Keweenaw Peninsula, Grand Sable dunes and Whitefish Point, the Mackinaw to Manitoulin area in northern Lake Huron, Misery Bay, Northern Lake Michigan, Saginaw Bay, Lake St. Clair and the Detroit River corridor, and Western Lake Erie (Figure 7-14). The report discusses the specific threats each area faces, which range from development pressure to heavy deer browse.

  SOLEC's 1999 publication covering Coastal Wetland BIAs divided the Superior to St. Lawrence Seaway into 44 eco-reaches, which are "coastal reaches of the Great Lakes that support significant wetland types that are all ecologically distinctive." The eco-reaches were delineated based on prevailing winds, littoral currents, areas of erosion, shoreline configuration, topography, and condition of adjacent upland. The authors used a wide variety of sources to identify the morphology of the wetlands as well as floral and faunal biodiversity (Herdendorf et al, 1981, Minc 1997, Albert and Minc 1998, and Goodyear et al. 1982). From this information, ten of the 44 eco-reaches were determined to be BIAs. In Michigan, the coastal wetland BIAs include Lake Superior poor fen, northern rich fen, northern Great Lakes marsh, Lake Michigan lacustrine estuaries, Saginaw Bay lake plain marsh and Lake Erie to Lake St. Clair marsh. The locations of coastal wetland complexes throughout Michigan are shown in figures 16-19.

A third SOLEC publication detailed BIAs for aquatic ecosystems. For identification of these areas, fish biodiversity was chosen as an indicator of overall biodiversity and ecological integrity. The authors first conducted surveys of Great Lakes experts to gather information on potential BIAs. They tested the suggested areas using habitat supply analysis, which links biodiversity, habitat attributes and spatial data in a ranking system. In total, 174 aquatic sites were identified, 25 of which are in Michigan (Figure 19). Since the State of Michigan owns all the bottomlands of the Michigan portion of the Great Lakes, many of the aquatic BIAs are already afforded some protection. However, parts of the aquatic BIAs may be located above the Great Lakes ordinary high water and, therefore, may need additional protection.

- *The North American Waterfowl Management Plan: Upper Mississippi and Great Lakes Region Joint Venture*

  When waterfowl populations plummeted to an all-time low in 1985, the United States and Canadian governments recognized the need to restore and protect these avian migrants through habitat conservation, restoration, and enhancement. In 1986, The North American Waterfowl Management Plan (NAWMP) was signed by Canada's Minister of the Environment and the U.S. Secretary of the Interior. In 1994, Mexico also became a signatory. A more specific plan for the Great Lakes and Mississippi region was developed in 1998. This update expanded the plan and included a biologically based design that could be evaluated on an ongoing basis.

  NAWMP is meant to be implemented at a regional level, and this is accomplished through the work of many partnerships called "joint ventures." Federal, state, provincial and local governments along with conservation organizations and private industries have collaborated on the *Upper Mississippi and Great Lakes Joint Venture* plan to identify primary and secondary focus areas that are necessary to conserve waterfowl populations. In Michigan, focus areas were divided into regions based on physiographic characteristics and management potential. Many of these areas are within the CELC boundaries, including Rudyard clay lake plain (St. Mary's River), Saginaw lake plain, Huron clay plain, Arenac lake plain (Lake Huron), Allegan lake plain and moraine (Lake Michigan), and northern continental high moraines and bedrock (Lake Superior). Habitat conservation objectives specific to each focus area are discussed in the plan with the overall goal of preserving close to 2 million acres of waterfowl breeding habitat throughout the state and to increase the duck breeding population to 650,000 by 2013.

- *The Great Lakes Regional Collaboration Strategy To Restore and Protect the Great Lakes*

President George W. Bush issued an executive order in May, 2004 calling the Great Lakes a “national treasure” and directing the USEPA to convene a "regional collaboration of national significance for the Great Lakes." The goal of the Great Lakes Regional Collaboration (GLRC) was to develop a plan to restore and protect the Great Lakes through cooperation with the region’s state, local and tribal governments. The strategy covers a wide range of Great Lakes issues including aquatic invasive species, contaminated sediments and control of non-point source pollution. A significant portion of the plan is dedicated to maintaining protection values and conserving lands that are consistent with Michigan’s CELC land acquisition priorities. Specifically, the plan calls for restoration of open water and nearshore habitat important for sustaining Michigan’s most important game fish, such as lake trout, lake herring, deepwater ciscoe, sturgeon, and many percid and salmonid species. In addition, the plan calls for sufficient protection of coastal shoreline habitats, coastal wetland habitats, and streams, tributaries and connecting channels within the basin to sustain endemic fish populations and functioning ecosystems. TNC’s publication, *Towards a New Conservation Vision for the Great Lakes Region, a Second Iteration*, and the NAWMP were used as a basis for identifying priority conservation areas.

As part of the GLRC, the Great Lakes Coastal Wetland Consortium was established to identify indicators for coastal wetland health and to inventory coastal wetlands throughout the basin. This inventory has been completed and may be used as to identify rare wetlands important to habitat and species conservation. A number of indicators have been chosen for use in a region wide coastal wetland monitoring program. The outcomes from the implementation of this large scale monitoring programs may aid Michigan in reassessing it priority conservation areas as data is collected and analyzed.

- Michigan Wetland Advisory Committee, *Michigan’s Wetland Conservation Strategy*

  This document was formulated by the Michigan Wetland Advisory Committee to extend wetland protection and management beyond the existing statutes and initiatives in place prior to 1997. The committee was made up of 12 individuals from diverse perspectives and was overseen by the DEQ Land and Water Management Division. The strategy called for a short term goal of increasing wetland acreage by 50,000 (approximately 1% of historical loss) by 2010 and to achieve the long term goal of restoring 500,000 acres of wetland. The document describes public benefits of wetlands, status and trends for Michigan’s wetland resources, regulatory and non-regulatory programs and opportunities for local and regional protection. The strategy emphasizes partnerships, necessity of wetland restoration and threats to existing systems.

Chapter 4 of the strategy, titled *Michigan's Wetland Reclamation Initiative*, is the portion of the document that is most pertinent to Michigan's CELC plan. Wetland restoration opportunities were evaluated and consolidated to establish statewide priority restoration areas. These areas include rare ecosystem types, focus areas from NAWMP, twelve watersheds identified as critical flood storage areas (six of which are within Michigan's CELCP boundaries) and lands identified in Area of Concern Remedial Action Plans and Lakewide Management Plans established under the Great Lakes Water Quality Agreement.

In addition to the comprehensive plans detailed above, Michigan found a number of regional and local plans that share many of the values associated with state wide plans, but contain more detail and focus on particular areas. Local governments, planning groups and non-profit organizations will likely find these plans, along with others listed in Appendix D, to be more useful than the broader based plans. Some of these localized plans contain field verified occurrences of rare natural communities or threatened and endangered species. Greater detail is given regarding the areas that need to be acquired. In many cases, local expertise was utilized to determine which properties will provide the best protection and management opportunities.

- The Michigan Dune Alliance, *Eastern Lake Michigan Shoreline Plan* and *Eastern Lake Michigan Coastal Conservation Plan: Part II*

  The goal of the Michigan Dune Alliance was to create a unified plan for all involved partners. The group created a ranking system that took rare communities, occurrence of threatened and endangered species, percent of natural area, fragmentation, stewardship possibilities, size of existing protected areas, and potential threats into consideration. Four indexes were created to analyze biodiversity, landscape context, conservation values and potential threats for each of 42 potential shoreline acquisition sites. The sites were subsequently prioritized based on these indexes. A second study was completed in 2005 to further consider geographic patterns of system locations, inherent quality of the lands and existing impacts. The second study also reviewed whether existing protection efforts had favored certain regions of the coast. Ranking order of the 42 sites was reevaluated based on this new study.

- The Great Lakes Commission, *Lake St. Clair Coastal Habitat Assessment*

  While Lake St. Clair is not a Great Lake in itself, it is important to recognize its role in the ecology of the system. Often called the "Heart of the Lakes," Lake St. Clair is the connection between Lake Huron and Lake Erie. The St. Clair River forms one of the largest freshwater deltas in the world, and its many islands and wetlands serve as a significant fish spawning area and migratory bird flyway. This area is also an important recreation and commercial shipping area for southeast Michigan and Canada.

This study assessed a ten mile buffer around the both U.S. and Canadian sides of the lake, including all the islands within the river delta. Like other plans, this one took ecological values into consideration. Its incorporation of political and socioeconomic data, however, is relatively unique. This type of data is not integrated into most state-wide plans, but is highly useful in establishing management opportunities and predicting the success of acquisition areas.

MNFI used the collected data to identify and rank potential conservation areas using NOAA's coastal change analysis program. Over 380 sites were identified, and the plan recommended ongoing integrated management to ensure analysis will continue as conditions around Lake St. Clair change and data collection improves.

- Michigan Department of Natural Resources, *State Game Area, Wildlife Area, and Wildlife Research Area Management Plans*

  Approximately 50 State Wildlife, Game, and Wildlife Research Areas are located within Michigan's CELCP boundary. The DNR Wildlife Division uses these areas to achieve its mission of enhancing, restoring and conserving the state's wildlife resources, natural communities and ecosystems for the benefit of Michigan's citizens, visitors and future generations. Each of these areas has either developed, or is in the process of developing a management plan that discusses goals and priorities for the area, including habitat restoration for appropriate species and recreational access for activities such as hunting, trapping and wildlife viewing. Over the past 30 years, plans have evolved from focusing on a few particular species, such as deer, woodcock, elk, Canada geese, and other popular game species, to managing at an ecosystem level with a focus on biodiversity and healthy overall ecological communities. Most of these plans include an acquisition component with land areas that would be appropriate for use of CELCP funds.

III. State Process for Implementing the CELCP

a. Identification of state lead agency

The lead agency for Michigan's CELCP is the DEQ's CLMU. The CLMU administers Michigan's federally approved Coastal Management Program. The CLMU will solicit and nominate projects for fee simple acquisition or establishment of conservation easements under the CELCP. CLMU staff work with applicants to confirm willing sellers of desirable property, conduct site assessments, and submit nomination packages to NOAA for the highest ranking proposals in accordance with the nomination and review procedures described below.

b. List of state or local agencies, or types of agencies, that are eligible to hold title to property acquired through the CELCP

Michigan is acutely aware that considerable portions of its 3,921 miles of Great Lakes shoreline are in dire need of protection and has partnered with NOAA and state and local governments to protect some of the best ecological, cultural, recreational, historical and aesthetic lands for future generations. In Michigan, local and national land conservancies and land trusts, such as TNC, play a critical role in obtaining and protecting these lands primarily, through private funding. However, because these are federal funds, derived through public taxation methods, the agencies that may hold title to property acquired through the CELCP are limited to the following:

State of Michigan Departments
County Governments
Township governments
City, town, or village governments
Conservation Districts
Tribal Governments
State Colleges and Universities

c. Description of the state's project nomination process

- Application process and requirements.

  Each year, NOAA will notify the states of the availability of CELCP funds. The CLMU will issue a funding notice and request for CELCP proposals. All proposals submitted to the CLMU will be reviewed based on their applicability to the values and project areas listed above. Requirements for complete applications are described in Appendix H.

  Complete applications will be reviewed by a team of staff of the CLMU to determine eligibility and ranking.

- Project eligibility

  To be eligible for CELCP funding, the project must meet the national criteria for nominated projects listed in section II(c.). The applicant must also be a qualified entity, which for the purposes of this program means state or local government agencies that have authority within Michigan's CELCP boundaries.

- Project Ranking

Eligible projects will be ranked and selected based on a project narrative and the evaluation and scoring process described in Appendix J. Projects that coincide both with Michigan's assessment of the types of lands needing protection and the project areas described in II(b.) are given priority by the scoring process. Michigan has adopted the federal narrative and numerical guidance for ranking projects. The CLMU will also use a GIS database to aid in decision making and project nomination. All available layers from the plans incorporated by reference into the CELC document will be included in the database, as well as regulatory maps such as Michigan's critical dune areas and the state's recently completed wetland inventory.

IV. Program Procedures Coordination of Public Involvement

a. Description of interagency coordination that occurred during the development of the plan.

Preparation of Michigan's CELC plan began with the solicitation of land acquisition plans from a variety of state and federal natural resource agencies, non-profit groups, land conservancies, and local governments throughout the state. Plans were reviewed for relevancy to CELCP and similarities among acquisition priorities were evaluated. The CLMU hosted five scoping meetings around the state (Houghton, Gaylord, Grand Rapids, Bay City and Grosse Ile) to gather input from local partners interested in acquiring land under the CELCP program. Staff also met with groups and agencies such as TNC, the National Fish and Wildlife Foundation, the Michigan Nature Association, various county and township officials, councils of governments, tribes, conservation districts, land conservatories, members of the U.S. Fish and Wildlife Service, planning organizations, land trusts, Watershed Initiative Network, and others to describe the workings of this new program.

Development of the document began in the summer of 2006. In early 2007, an internal review committee was formed, consisting of members of the DEQ Environmental Science and Services Division and Land and Water Management Division, and the DNR Wildlife Division. The document was subsequently sent out for review by other agencies, including TNC, Michigan Sea Grant, Ducks Unlimited, Michigan Department of History, Arts and Libraries, and DNR Fisheries, Parks and Recreation, and Forest, Mineral and Fire Management Divisions. This external review ensured all appropriate land values and priority areas were included in Michigan's CELC plan and ensured the majority of available land protection plans written for Michigan's coast line were included.

b. Description of the public involvement in the development of the plan.

Once the internal review was completed for Michigan's draft CELC plan, it was placed on the State of Michigan's calendar and environmental list serves such as "Enviromich" and the Great Lakes Information Network for further public review. Because public meetings for these types of documents tend to be poorly attended, (as evidenced by the FLP *Assessment of Need* process) public meetings are not being considered for the review of this document.

V. Certification and Approval

a. Certification that plan is consistent with the state's territory's approved coastal management program.

Appendix A: Michigan Coastal County Population Trends

COASTAL COUNTY	2004 POPULATION	ABSOLUTE CHANGE (from 2000 to 2004)	% CHANGE (from 2000 to 2004)	2004 POPULATION IN CELCP AREA
Alcona	11,646	-73	-0.60%	11,233
Alger	9,760	-102	-1.00%	9,760
Allegan	112,477	6,812	6.40%	93,199
Alpena	30,739	-575	-1.80%	28,261
Antrim	24,500	1,390	6.00%	24,500
Arenac	17,321	52	0.30%	17,321
Baraga	8,728	-18	-0.20%	8,168
Bay	109,480	-677	-0.60%	109,480
Benzie	17,466	1,468	9.20%	17,466
Berrien	163,125	672	0.40%	163,125
Charlevoix	26,665	575	2.20%	26,665
Cheboygan	27,289	841	3.20%	14,572
Chippewa	38,791	248	0.60%	38,791
Delta	38,380	-140	-0.40%	38,380
Emmet	33,277	1,840	5.90%	30,533
Gogebic	17,029	-341	-2.00%	15,556
Grand Traverse	82,752	5,098	6.60%	82,752
Houghton	35,568	-448	-1.20%	35,568
Huron	34,948	-1,131	-3.10%	34,948
Iosco	26,873	-466	-1.70%	26,873
Keweenaw	2,204	-97	-4.20%	2,204
Leelanau	22,163	1,044	4.90%	22,163
Luce	6,850	-174	-2.50%	6,850
Mackinac	11,383	-560	-4.70%	11,383
Macomb	822,660	34,511	4.40%	822,660
Manistee	25,090	563	2.30%	25,090
Marquette	64,874	240	0.40%	63,246
Mason	29,074	800	2.80%	29,074
Menominee	25,174	-152	-0.60%	25,174
Monroe	152,552	6,607	4.50%	152,552
Muskegon	174,401	4,201	2.50%	174,401
Oceana	28,415	1,542	5.70%	28,415
Ontonagon	7,538	-280	-3.60%	7,538
Ottawa	252,351	14,037	5.90%	252,351
Presque Isle	14,306	-105	-0.70%	14,306
St. Clair	170,916	6,681	4.10%	170,916
Sanilac	44,828	281	0.60%	38,661
Schoolcraft	8,874	-29	-0.30%	8,874
Tuscola	58,646	380	0.70%	29,300
Van Buren	78,541	2,278	3.00%	76,103
Wayne	2,016,202	-44,960	-2.20%	2,016,202
TOTAL	**4,883,856**	**41,833**	**0.90%**	**4,804,614**

APPENDIX B:

Michigan Natural Features Inventory
Global and State Ranked Natural Communities

Global and State Element Ranking Criteria

GLOBAL RANKS

G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 = either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.

G4 = apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 = demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

GH = of historical occurrence throughout its range, i.e. formerly part of the established biota, with the expectation that it may be rediscovered (e.g. Bachman's Warbler).

GU = possibly in peril range-wide, but status uncertain; need more information.

GX = believed to be extinct throughout its range (e.g. Passenger Pigeon) with virtually no likelihood that it will be rediscovered.

STATE RANKS

S1 = critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.

S2 = imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.

S3 = rare or uncommon in state (on the order of 21 to 100 occurrences).

S4 = apparently secure in state, with many occurrences.

S5 = demonstrably secure in state and essentially ineradicable under present conditions.

SA = accidental in state, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range.

SE = an exotic established in the state; may be native elsewhere in North America (e.g. house finch or catalpa in eastern states).

SH = of historical occurrence in state and suspected to be still extant.

SN = regularly occurring, usually migratory and typically nonbreeding species.

SR = reported from state, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.

SRF = reported falsely (in error) from state but this error persisting in the literature.

SU = possibly in peril in state, but status uncertain; need more information.

SX = apparently extirpated from state.

List of Coastal Community Types with Global and State Ranks

(Names in italics represent categories that are not currently tracked as separate natural communities)

Community Name	**State Rank**	**Global Rank**
Alvar [Alvar grassland]	S1	G2?
Bedrock glade		
Basalt bedrock glade	S2	G3
Igneous bedrock glade	S2	G3G4
Limestone bedrock glade [Alvar glade]	S2	G2?
Sandstone bedrock glade	S2?	G3G4
Volcanic conglomerate bedrock glade	S2	G3
Bedrock lakeshore		
Basalt bedrock lakeshore	S2	G3
Igneous bedrock lakeshore	S2	G?
Limestone pavement lakeshore [Alvar pavement]	S2	G3
Volcanic conglomerate bedrock lakeshore	S2	G3
Bog	S4	G3
Boreal forest	S3	GU
Cave	S1	G4?
Cliff		
Dry acid cliff	S2?	G4
Dry non-acid cliff	S2	G4
Moist acid cliff	S2	G4
Moist non-acid cliff	S2	G4
Coastal plain marsh	S2	G2
Cobble beach [Cobble shore]	S3	G3?
Dry northern forest [Pine forest]	S3	G3?
Dry sand prairie	S2	G3
Dry southern forest [Oak forest]	S3	G4
Dry-mesic northern forest [Pine-hardwood forest]	S3	G4
Dry-mesic southern forest [Oak-hardwood forest]	S3	G4
Great Lakes barrens	S2	G3
Great Lakes marsh	S3	G2
Hardwood-conifer swamp	S3	G4
Hillside prairie	S1	G3
Inland salt marsh	S1	G1
Interdunal wetland	S2	G2?
Intermittent wetland [Boggy seepage wetland]	S3	G2
Inundated shrub swamp	S3	GU
Lakeplain mesic sand prairie	S1	G1
Lakeplain oak openings	S1	G2?

Community Name	State Rank	Global Rank
Lakeplain wet prairie	S1	G2?
Lakeplain wet-mesic prairie	S1	G1?
Lakeshore cliff		
Basalt lakeshore cliff	S1	G3?
Sandstone lakeshore cliff	S2	G3
Volcanic conglomerate lakeshore cliff	S1	G3?
Mesic northern forest [Northern hardwood forest; Hemlock-hardwood forest]	S3	G4
Mesic prairie	S1	G2
Mesic sand prairie	S1	G1?
Mesic southern forest [Southern hardwood forest]	S3	G3?
Muskeg	S3	G4
Northern bald [Krummholz ridgetop]	S1	GU
Northern fen	S3	G3
Northern swamp	S3?	G4
Northern wet-mesic prairie	S1	GNR
Oak barrens	S1	G2?
Oak openings	S1	G1
Oak-pine barrens	S2	G3
Open dunes	S3	G3
Patterned fen	S2	GU
Pine barrens	S2	G3
Poor fen	S3	G3
Prairie fen	S3	G3
Relict conifer swamp	S3	G3
Rich conifer swamp	S3	G4
Sand/gravel beach	S3	G3?
Sinkhole	S2	G3G5
Southern floodplain forest	S3	G3?
Southern swamp	S3	G3
Southern wet meadow	S3	G3?
Wet prairie	S2	G3
Wet-mesic prairie	S2	G2
Wooded dune and swale complex	S3	G3
Woodland prairie	S2	G3

APPENDIX C:

Great Lakes Aquatic System Target Areas Identified by The Nature Conservancy's *Towards a New Conservation Vision for the Great Lakes*

Stream Targets	Lake Targets	Nearshore Targets
WESTERN UPPER PENINSULA & KEWEENAW PENINSULA		
clay plain coastal streams on western Keweenaw Peninsula	Kettle moraine lakes	baymouth/barrier beaches with bedrock nearshore
coastal reaches of western Upper Peninsula rivers	large (partially bedrock-confined) headwater lakes	bedrock (resistant) with bedrock (resistant) nearshore
Copper Country coastal streams on bedrock/thin till-most with falls near mouth		coarse beaches with bedrock (resistant) nearshore
lower Ontonagon River		sandy beach/dunes with bedrock resistant nearshore
mid reaches of Ontonagon river with dissected lake plain		sandy beach/dunes with sand nearshore
Winegar moraine headwaters streams		semi-protected wetlands with bedrock (resistant) nearshore
CENTRAL UPPER PENINSULA		
large coastal steams on till plain entering western Green Bay extensive wetlands	fault lakes	bedrock (resistant) with bedrock (resistant) nearshore
large, moderate groundwater small to medium-sized streams on outwash and coarse ground/end moraine	Kettle moraine lakes	coarse beaches with sand nearshore

Stream Targets	Lake Targets	Nearshore Targets
lower Menominee River	large (partially bedrock-confined)headwater lakes	low bluff (< 15 M) with sand nearshore
lower Sturgeon River	peat lakes	open shoreline wetlands with sand nearshore
Medium-sized coastal streams on till and lake plain	small, bedrock-confined headwater lakes	sandy beach/dunes with bedrock (resistant) nearshore
Michigamme highland-Huron Mountain Coastal Rivers	small, headwater lakes on outwash plain	semi-protected wetlands with bedrock (resistant) nearshore
Michigamme highland-Huron Mountain inland Rivers		
moderate groundwater small to medium-sized streams on outwash and coarse ground/end moraine (drumlins common)		
moderate to high gradient coastal streams entering Keweenaw or Huron Bay		
small to medium sized tributaries to the lower Sturgeon River		
EASTERN UPPER PENINSULA		
Bay de Noc tributaries on outwash and lake plain	lake plain wetland lakes	baymouth/barrier beaches with bedrock nearshore
central Upper Peninsula coastal streams--Lake Superior drainage	large lakes with coastal connections	baymouth/barrier beaches with sand
lower reaches of Tahquemenon and Manistique Rivers	peat lakes	bedrock (resistant) with bedrock (resistant) nearshore
Medium-sized coastal stream on Cheboygan lake plain	shallow dune lakes	coarse beaches with bedrock (resistant) nearshore
Seney sand lake plain streams	small, headwater lakes on outwash plain	open shoreline wetlands with sand nearshore
small to medium sizes streams on peat and lake plain		sandy beach/dunes with bedrock (resistant) nearshore
St. Ignace-Rudyard clay lake plain coastal streams-extensive wetlands		sandy beach/dunes with sand nearshore

Stream Targets	Lake Targets	Nearshore Targets
EASTERN UPPER PENINSULA		
St. Ignace-Rudyard clay lake plain coastal streams-few wetlands		semi-protected wetlands with bedrock (resistant) nearshore
NORTHERN L. MICHIGAN, L. HURON, AND STRAITS OF MACKINAC		
branches of Thunder Bay river-lower reaches	bog ponds	baymouth/barrier beaches with bedrock nearshore
cold, groundwater-fed stream on sandy lake plain	drowned river mouth lakes	baymouth/barrier beaches with sand and gravel lag over clay nearshore
high groundwater, headwater streams in outwash and ice contact	headwater and unconnected lakes in ice contact	baymouth/barrier beaches with sand
lower Cheboygan/Black River	Kettle moraine lakes	bedrock (resistant) with bedrock (resistant) nearshore
lower reaches of Au Sable, Manistee, Muskegon Rivers	lake plain wetland lakes	coarse beaches with bedrock (resistant) nearshore
mainstems of Au Sable, Manistee and Muskegon Rivers	pinched off bays of Great Lakes	high bluff with beach with sand and gravel lag over clay nearshore
Medium-sized steams in Harrisville Moraines--karst terrain	sink hole lakes	open shoreline wetlands with sand nearshore
Medium-sized, moderate to high groundwater streams entering Lake Charlevoix, Grand Traverse Bay/Chain of Lakes, and/or Little Traverse bay	small, headwater lakes on outwash plain	sandy beach/dunes with sand and gravel lag over clay nearshore
moderate groundwater coastal streams (NW Lake Michigan) with drowned river mouth	very large, deep, inland lakes	sandy beach/dunes with sand nearshore
small to medium-sized rivers in outwash and coarse ground moraine	very large, wetland-connected inland lakes	semi-protected wetlands with bedrock (resistant) nearshore
Thunder Bay River headwaters		

Stream Targets	Lake Targets	Nearshore Targets
SAGINAW BAY		
wetland-connected headwater streams on outwash plain, ice contact and end moraine		
Huron clay lake plain coastal streams	Kettle moraine lakes	baymouth/barrier beaches with bedrock nearshore
interlobate headwater streams (Saginaw Bay drainage)		baymouth/barrier beaches with sand
lower Tittabawassee River		bedrock (composite) with bedrock nearshore
lowland, lake plain river (fed by interlobate headwaters)		bedrock (resistant) with bedrock (resistant) nearshore
Medium- to larger-sized lake plain coastal rivers--fed by headwaters originating of lake plain		coarse beaches with bedrock (resistant) nearshore
Saginaw River		open shoreline wetlands with sand and gravel lag over clay nearshore
small lake plain tributaries to Shiawassee River		open shoreline wetlands with sand nearshore
Tawas lake plain coastal streams		sandy beach/dunes with bedrock (resistant) nearshore
Tittabawassee River Tributaries		sandy beach/dunes with sand nearshore
SOUTHEAST LAKE MICHIGAN		
Interlobate headwater streams (Lake Michigan drainage)	Cisco lakes	baymouth/barrier beaches with sand and gravel lag over clay nearshore
large rivers in southwest Michigan till plains	Kettle moraine lakes	baymouth/barrier beaches with sand nearshore
large to very larger rivers in southwest Michigan till plains--coastal reach	large, deep, stream-connected lakes	sandy beach/dunes with sand/gravel nearshore
Medium-sized, lowland rivers with extensive riparian wetlands	oxbow lakes	
sandy coastal dune streams		

Stream Targets

SOUTHEAST LAKE MICHIGAN

small to medium-sized tributary streams in end moraine e and outwash

small to medium-sized tributary streams in outwash and ice contact

Southern tributaries to St. Joseph River (Lake Michigan Drainage)

Tributary streams in medium textured moraines (southern Iona moraines)

SOUTHEAST MICHIGAN INTERLOBATE AND LAKE PLAIN

Interlobate headwater streams (Lake Erie drainage)

lake plain tributaries connecting to a medium-sized stream

medium- to large-sized lake plain coastal river--fed (at least in part) by interlobate headwaters streams

medium- to large-sized lake plain coastal rivers--fed by headwaters originating on lake plain

61 streams, 23 lakes, 19 nearshore = 103

Lake Targets

Cisco lakes

inland whitefish lakes

Kettle moraine lakes

marl lakes

Nearshore Targets

open shoreline wetlands with sand and gravel lag over clay nearshore

Appendix D

Coastal State Game Areas, Wildlife Areas, Wildlife Research Areas, Parks and Forests

County	State Managed Areas
Alcona	Au Sable State Forest
	Harrisville State Park
	Hubbard Lake State Wildlife Area
	Negwegon State Park
	Sturgeon Point Scenic Site
Alger	Cusino Wildlife Research Area
	Escanaba River State Forest
	Lake Superior State Forest
	Laughing Whitefish Falls Scenic Site
	Wagner Falls Scenic Site
Allegan	Allegan State Game Area
	Saugatuck Dunes State Park
Alpena	Mackinaw State Forest
Arenac	Au Sable State Forest
	Wigwam Bay Wildlife Area
Baraga	Baraga Plains State Wildlife Management Area
	Baraga State Park
	Copper County State Forest
	Craig Lake State Park
Bay	Nayanquing Point Wildlife Area
	Pinconning Township State Game Area
	Quanicassee Wildlife Area
	Tobico Marsh State Game Area
Benzie	Betsie River State Game Area
	Pere Marquette State Forest
	Grand Mere State Park
	Warren Dunes State Park
	Warren Woods State Park
Charlevoix	Beaver Islands Wildlife Research Area
	Fisherman's Island State Park
	Mackinaw State Forest
	Young State Park
Cheboygan	Cheboygan State Park
	Mackinaw State Forest
Chippewa	Brimley State Park
	Drummond Islands
	Lake Superior State Forest
	Munuscong State Wildlife Area
	Taquamenon Falls State Park
Delta	Escanaba River State Forest

County	State Managed Areas
Delta	Fayette Historic State Park
	Lake Superior State Forest
	Portage Marsh State Wildlife Management Area
Emmet	Mackinaw State Forest
	Petoskey State Park
	Wilderness State Park
Gogebic	Lake Gogebic State Park
Grand Traverse	Inerlochen State Park
	Pere Marquette State Forest
	Petobego State Game Area
	Traverse City State Park
Houghton	Copper Country State Forest
	McLain State Park
	Twin Lakes State Park
Huron	Albert E. Sleeper State Park
	Brookfield Township #1 State Game Area
	Brookfield Township #2 State Game Area
	Gagetown State Game Area
	Oliver Township State Game Area
	Port Crescent State Park
	Rush Lake State Game Area
	Verona State Game Area
	Wildfowl Bay Wildlife Area
Iosco	Au Sable State Forest
	Tawas Point State Park
Keweenaw	Copper Country State Forest
	Fort Wilkins Historic State Park
Leelanau	Beaver Islands Wildlife Research Area
	Leelanau State Park
	Pere Marquette State Forest
Luce	Lake Superior State Forest
	Muskallonge Lake State Park
Mackinac	Father Marquette Memorial Scenic Site
	Lake Superior State Forest
	Mackinaw State Forest
	Straits State Park
Macomb	Chesterfield Township State Game Area
	Salt River Marsh State Game Area
	W.C. Wetzel State Park
Manistee	Manistee River State Game Area
	Orchard Beach State Park
Marquette	Escanaba River State Forest
	Van Riper State Park
Mason	Ludington State Park
	Pere Marquette State Game Area
Menominee	Escanaba River State Forest
	Wells State Park

County	State Managed Areas
Monroe	Erie State Game Area
	Petersburg State Game Area
	Pointe Aux Peaux State Wildlife Area
	Pointe Mouillee State Game Area
	Sterling State Park
Muskegon	Duck Lake State Park
	Hoffmaster State Park
	Muskegon State Game Area
	Muskegon State Park
Oceana	Hart- Montague Trail State Park
	Mears State Park
	Pentwater River State Game Area
	Pere Marquette State Forest
	Silver Lake State Park
Ontonagon	Agate Falls Scenic Site
	Bond Falls Scenic Site
	Copper Country State Forest
	Porcupine Mountains State Park
Ottawa	Bass River State Recreation Area
	Blendon Township State Game Area
	Grand Haven State Game Area
	Grand haven State Park
	Holland State Park
	Olive Township State Game Area
Presque Isle	Mackinaw State Forest
	Onaway State Park
	P.H. Hoeft State Park
	Thompson's Harbor State Park
Sanilac	Minden City State Game Area
	Sanilac State Game Area
Schoolcraft	Indian Lake State Park
	Lake Superior State Forest
	Palm Book State Park
St. Clair	Algonac State Park
	Lake Port State Park
	Port Huron State Game Area
	St. Clair Flats Wildlife Area
	St. Clair Township State Game Area
	St. Johns Marsh State Wildlife Area
Tuscola	Almer Township State Game Area
	Denmark Township State Game Area
	Fish Point State Wildlife Area
	Gagetown State Game Area
	Quanicassee Wildlife Area
	Tuscola State Game Area
	Vassar State Game Area
Van Buren	Fuller Woods State Game Area

County	State Managed Areas
Van Buren	Kal-Haven Trail State Park
	Van Buren State Park
	Van Buren Trail State Park
Wayne	Brownstown Prairie State Wildlife Area
	Pointe Mouillee State Game Area
	Tri-Centennial State Park and Harbor

Appendix E:
Plans Incorporated by Reference into Michigan's CELC Plan

PLAN/INVENTORY NAME	AGENCY or ORGANIZATION	HABITAT TYPES or VALUES TO BE PROTECTED	COASTAL AREA COVERED	YEAR UPDATED
2006 Forest Management Plan (DRAFT)	Michigan Department of Natural Resources, Forest, Mineral and Fire Management Division	Preservation of high quality areas within State Forests	Michigan	2006
Alpena Eco-Plan	Northeast Michigan Council of Governments	Corridors and greenways within the county	Alpena County	2002
Atlas of Critical Dunes	Michigan Department of Environmental Quality, Land and Water Management Division	Critical dune areas	Michigan shorelines of Lakes Michigan and Superior	1989
Atlas of the spawning and nursery areas of Great Lakes fishes	U.S. Fish and Wildlife Service and The U.S. Army Corps of Engineers	Fish spawning and nursery areas	Waters of the Great Lakes and connecting channels	1982
Au Sable River Assessment	Michigan Department of Natural Resources, Fisheries Division	Preservation of the river's natural hydrologic regime through protection of wetlands, floodplains and uplands that provide groundwater recharge.	Au Sable River Watershed, Alcona and Iosco Counties	2001
Biological Ranking Criteria for Conservation of Islands in the Laurentian Great Lakes	The Nature Conservancy, Great Lakes Program	Great Lakes Islands	Great Lakes through the St. Lawrence Seaway	2004

PLAN/INVENTORY NAME	AGENCY or ORGANIZATION	HABITAT TYPES or VALUES TO BE PROTECTED	COASTAL AREA COVERED	YEAR UPDATED
Chocolay River Watershed Restoration and Adaptive Management Plan	Lake Superior Watershed Partnership	Forest Lands, wetlands, residential, urban and agricultural areas	Chocolay Watershed, Marquette County	1999
Clinton River Assessment	Michigan Department of Natural Resources, Fisheries Division	Preservation of undeveloped riparian habitat	Clinton River Watershed, Oakland and Macomb Counties	2006
Conserving Great Lakes Alvars: Final Technical Report of the International Alvar Conservation Initiative.	The Nature Conservancy, Great Lakes Program	Great Lakes alvars	Great Lakes Basin	1999
Explore our Natural World: A Biodiversity Atlas of the Lake Huron to Lake Erie Corridor	U.S. Environmental Protection Agency Great Lakes National Program Office	Preservation of aquatic, wetland and terrestrial areas with high biodiversity	St. Clair and Detroit Rivers and Lake St. Clair	2002
High-Value Wetlands Inventory of the Watersheds of Antrim, Charlevoix, Cheboygan, and Emmet Counties	Tip of the Mitt Watershed Council	Areas showing potential wetland habitat	Antrim, Charlevoix, Cheboygan, and Emmet Counties	1994
Huron River Assessment	Michigan Department of Natural Resources, Fisheries Division	Protect headwaters, wetlands, floodplains, high gradient and naturally graveled habits, forested corridors and natural lake outlets	Huron River Watershed, Wayne and Monroe Counties	1995
Kalamazoo River Assessment	Michigan Department of Natural Resources, Fisheries Division	Protect undeveloped riparian corridors, wetlands and forested corridors	Kalamazoo River Watershed, Allegan and Ottawa Counties	2005
Land Use Planning Guide for Marquette County, Michigan	Lake Superior Watershed Partnership	Watersheds/Natural Resources, rock outcroppings, hydric soils, sensitive areas, element occurrences	Marquette County	2003

PLAN/INVENTORY NAME	AGENCY or ORGANIZATION	HABITAT TYPES or VALUES TO BE PROTECTED	COASTAL AREA COVERED	YEAR UPDATED
Manistee River Assessment	Michigan Department of Natural Resources, Fisheries Division	Protect wetlands, floodplains and sandy uplands that provide groundwater recharge, and all critical habitats	Manistee River Watershed, Manistee and Mason Counties	1998
Manistique River Assessment	Michigan Department of Natural Resources, Fisheries Division	Preservation of the river's natural hydrologic regime through protection of wetlands, floodplains and uplands that provide groundwater recharge.	Manistique River Watershed, Schoolcraft, Alger, Mackinaw and Luce Counties	2004
Michigan Comprehensive Outdoor Recreation Plan 2003-2007	Michigan Department of Natural Resources, Parks and Recreation Division	Acquisition of state park in holdings to protect, restore and enhance natural resources and recreation venues	Michigan	2003
Michigan Department of Natural Resources, Dedicated Boundaries	Michigan Department of Natural Resources, Wildlife Division, Forest, Mineral and Fire Division, and Parks and Recreation Division	Valuable lands adjacent to existing state lands that should be acquired by the state	Michigan	2004
Michigan Wildlife Action Plan	Michigan Department of Natural Resources, Wildlife Division	Key habitats and community types essential to conservation of wildlife populations	Michigan	2005
Migratory Bird Stopover Site Attributes in the Western Lake Erie Basin	The Nature Conservancy	Ranks conservation importance of Migratory bird stopover sites	Southeast Michigan and Northwest Ohio	2006
Misery Bay Initiative	Northeast Michigan Council of Governments	Conservation of forests, wetlands and recreation areas	Alpena County	2004
Muskegon River Assessment	Michigan Department of Natural Resources Fisheries Division	Preserve forested riparian corridors, wetlands, sensitive plant and animal communities, and floodplains	Muskegon River Watershed, Muskegon County	1997

PLAN/INVENTORY NAME	AGENCY or ORGANIZATION	HABITAT TYPES or VALUES TO BE PROTECTED	COASTAL AREA COVERED	YEAR UPDATED
Natural Features Survey, Lake Superior Shoreline, Marquette County, Michigan	The Superior Watershed Partnership	Lake Superior shoreline and natural communities	Marquette County	2000
North American Waterfowl Management Plan: 2004 Strategic Guidance	U.S. Fish and Wildlife Service	Areas of continental significance to North American waterfowl	Canada, United States, and Mexico	2004
Northwest Michigan Greenways Regional Ecological Corridors Inventory	Northwest Michigan Council of Governments	Major river corridors, including their tributaries, floodplains, and associated wetlands, and upland corridor links between large tracts of public land	Antrim, Benzie, Grand Traverse, Kalkaska, and Leelanau Counties	1998
Partners in Flight Bird Conservation Plan for the Upper Great Lakes Plain (Physiographic Area 16)	Partners in Flight Midwest Regional Coordinator	Priority bird populations and habitats	Portions of Michigan, Wisconsin, Illinois, Ohio and Indiana	2001
River Raisin Assessment	Michigan Department of Natural Resources, Fisheries Division	Protect undeveloped riparian corridors, wetlands and forested corridors	River Raisin Watershed, Monroe County	1998
Rouge River Assessment	Michigan Department of Natural Resources, Fisheries Division	Protect floodplain, greenbelts, groundwater recharge areas, wetlands, redside dace habitat, and headwaters.	Rouge River Watershed, Wayne County	1998
Saginaw Bay Coastal Initiative High Priority Wetland Areas	Michigan Department of Environmental Quality, Land and Water Management Division	Wetlands with high acquisition priority within the Saginaw Bay Watershed	Arenac, Bay, Huron, Saginaw and Tuscola Counties	2007
Saginaw Bay Watershed Wildlife Habitat Conservation Framework	Saginaw Bay Watershed Initiative Network	Emphasizes protection of lands that are lakeward or riverward of the 585 contour	Saginaw Bay Watershed	2000

PLAN/INVENTORY NAME	AGENCY or ORGANIZATION	HABITAT TYPES or VALUES TO BE PROTECTED	COASTAL AREA COVERED	YEAR UPDATED
St. Joseph River Assessment	Michigan Department of Natural Resources, Fisheries Division	Protect developed and undeveloped critical riparian habitats, wetlands, floodplains and forested corridors	St. Joseph watershed, Berrien and Van Buren Counties	1999
Strategic Plan for the Michigan State Waterways Commission	Michigan Department of Natural Resources, Parks and Recreation Division	Provide public access to the Great Lakes and inland waters where access is limited	Michigan	2000
The Known Critical Non-Contiguous Wetlands of Michigan, Final Report Volumes I and II.	Michigan Department of Environmental Quality, Land and Water Management Division	Critical non-contiguous wetlands	Michigan	1996
Thunder Bay River Assessment	Michigan Department of Natural Resources, Fisheries Division	Preservation of the river's natural hydrologic regime through protection of wetlands, floodplains and uplands that provide groundwater recharge.	Thunder Bay Watershed, Alpena, Alcona and Presque Isle Counties	2006
Whetstone Brook and Orianna Creek Watershed Management Plan	Central Lake Superior Watershed Partnership	Protect water resources, groundwater, wetlands, woodlands, macroinvertebrates, fish, aquatic habitat	Marquette City and Whetstone and Orianna Creek Watershed	2002
Vision 20/20: A strategic Plan for Michigan State Parks	Michigan Department of Natural Resources, Parks and Recreation Division	Preservation of natural, historic and recreation areas	Michigan	1992
A Vision of Green for Michigan's Bay, Midland, and Saginaw Counties	Saginaw Bay Watershed Initiative Network	Preservation of corridors between the bay area's natural features, historical and cultural areas	Bay, Midland and Saginaw Counties	2002

Appendix F:
DEQ Approved Watershed Management Plans

Watershed Plan Name	Plan Completion Date	Approval District	Approval Date
Anchor Bay	Dec-03	Southeast MI	Dec-03
Bear Creek (Macomb & Oakland Co)	Aug-00	Southeast MI	Aug-00
Bear Creek (Manistee Co.)	Jul-00	Cadillac	Aug-00
Bear Creek/Bear Lake (Muskegon Watershed)	Apr-04	Grand Rapids	May-04
Betsie River	Jul-00	Cadillac	Aug-00
Black Lake	Aug-02	Cadillac	Sep-02
Black River		Kalamazoo	Dec-04
Boardman River	Aug-00	Cadillac	Nov-99
Cheboygan River	Jun-05	Cadillac	Feb-04
Chocolay River	Jun-05	Upper Peninsula	May-00
Eastern Sanilac Coastal Tributary	Dec-03	Saginaw Bay	Dec-03
Elk River Chain of Lakes	Jul-00	Cadillac	Dec-99
Galien River	Jul-03	Kalamazoo	Jul-03
Glen Lake/Crystal River	Jan-03	Cadillac	Apr-03
Grand Traverse Bay	Dec-03	Cadillac	Dec-03
Gun River	Dec-03	Kalamazoo	Dec-03
Hamlin Lake/Big Sable	Jul-00	Cadillac	Nov-99
Lake Charlevoix		Cadillac	
Lake Leelanau	Aug-00	Cadillac	Jan-02
Les Cheneaux	Jun-05	Upper Peninsula	Jun-05
Little Manistee River	Aug-00	Cadillac	Jul-01
Little Rabbit River	Jul-00	Kalamazoo	Nov-00
Little Traverse Bay	Jun-04	Cadillac	Jun-04
Lower Dead River	Jul-03	Grand Rapids	Dec-03
Lower Grand River	Sep-04	Grand Rapids	Dec-04
Macatawa	Aug-00	Grand Rapids	Aug-00
Manistee River	Jul-00	Cadillac	Sep-00
Mitchell Creek	Aug-00	Cadillac	Dec-99
Mullet Lake	Sep-02	Cadillac	Sep-02
Ocqueoc River	Feb-04	Cadillac	Apr-04
Otter River	Jul-00	Upper Peninsula	Oct-00
Pere Marquette	Jul-00	Cadillac	Aug-01
Pigeon River	Aug-00	Grand Rapids	Aug-00
Pine River/Van Etten Lake		Cadillac	Mar-03
Platte River	Apr-00	Cadillac	Jul-02

Watershed Plan Name	Plan Completion Date	Approval District	Approval Date
Rifle River	Mar-99	Saginaw Bay	Nov-99
Rouge River	Jul-00	Southeast MI	Aug-01
S. Br. Pentwater River	Aug-00	Grand Rapids	Jan-00
Sebewaing River	Aug-00	Saginaw Bay	Aug-01
Spring Lake	Jul-00	Grand Rapids	Jul-01
St. Joseph River	Jun-05	Kalamazoo	Jul-05
Stony Creek (Oakland & Macomb Co)	Nov-03	Southeast MI	Dec-03
Thunder Bay River (Main Branch)	Jun-05	Cadillac	Nov-02
Thunder Bay River (N & S Tributaries)	Nov-02	Cadillac	Jan-05
Trap Rock River	--	Upper Peninsula	Sep-02
Upper Rabbit River		Kalamazoo	Jul-02

Appendix G:
Michigan Partners in The Nature Conservancy's *Towards a New Conservation Vision for the Great Lakes Region, a Second Iteration*

Blue water Land Conservancy
DEQ
DNR-Forest, Mineral and Fire Management Division
DNR-Wildlife Division
DNR-Parks and Recreation Division
DNR-Fisheries Division
Grand Traverse Regional Land Conservancy
Hiawatha National Forest
Keweenaw Land Trust
Lake St. Clair Great Lakes Fisheries Station
Mead Paper
MNFI
Northern Michigan University
Ottawa National Forest
Porcupine Mountains Wilderness State Park
Saginaw Basin Land Conservancy
Seney National Wildlife Refuge
Shelter Bay Forests
Tahquemenon Falls State Park
Tip of the Mitt Watershed Council
TNC
Huron-Manistee national Forest
U. S. Fish and Wildlife Service
U. S. Geological Survey
University of Michigan

Appendix H:

Michigan Partners in the development of SOLEC BIAs:

City of Grand Haven
DNR
Friends of the St. Joseph River Association Inc
Gratiot Lake Conservancy
Great Lakes Research Laboratory
Great Lakes Fisheries Commission: Habitat Advisory Board
Keweenaw Bay Indian Community
Lake Erie Committee's Environmental Objectives task group
Lake Huron Fishing Club
MNFI
Michigan Sea Grant Program
Tip of the Mitt Watershed Council
TNC
U. S. Geological Survey
U.S. EPA
Many others in the Great Lakes community and various reports

Appendix I:
Requirements for Complete Applications

I. Applicants must submit the following with the application:
   a. Completed the project check list
   b. Project description, including:

      1. The nature of the project, including acreage and types of habitats or land values to be protected, the legal rights to be acquired (i.e., fee title or easement, mineral, oil & gas, etc.), how the funds (federal and non-federal) will be used, and conversion threats to the property, as well as a description of these same characteristics for any property that will be used as match
      2. How the proposed project meets the state and national criteria and its expected benefits in terms of coastal and estuarine land conservation
      3. Any pre-existing uses of the property, the nature of those uses, and proposed future uses
      4. Discrete benchmarks for completing the project within a specified time period. These benchmarks should indicate whether the project is "ready to go", have deadlines, and whether this project is likely to be completed within the award period
      5. The types of activities that would be allowed to take place on the land and a strategy for long-term stewardship, including support for long-term operations, such as maintenance or enforcement against illegal uses; and
      6. A description of any other applications that have been submitted to acquire federal funding for this project, and if so, which federal program(s) and year(s)

   c. A map of the state or coastal county showing the general location of the project
   d. A map of the project site, which shows the location and extent of the proposed acquisition and its relationship to significant natural features (slope, wetlands, dunes, floodplains, access points, etc.), as well as adjacent land uses
   e. A copy of the plat or survey map of the parcel(s)
   f. Aerial photograph(s) of the proposed project area
   g. A copy of the "last deed of record" for the parcel(s)
   h. Photographs of pertinent project highlights, where possible
   i. Provide written expression of the willingness of the owner to sell the property at or below the fair market (appraised) value or place the parcel(s) in conservation easement
   j. Project budget and justification of proposed costs

      1. A breakdown of costs by category: salary, fringe benefits, travel, equipment, supplies, contractual, construction, match and other.
      2. A description of the required 1:1 non-federal match

3. Applicants wishing approval of pre-award costs should include such requests in their application and identify the costs, the time period in which they occurred, and a justification for their need as associated with the project
4. Recent appraisal using the Uniform Appraisal Standards for Federal Land Acquisition at the time of submittal of final grant application to NOAA
    - The negotiated price of the property, or interest in the property, should be based on the fair market value determined by an independent appraisal conducted by a state-approved appraiser.
    - If the applicant wishes to purse acquisition at a price above the appraised value, the applicant must demonstrate reasonable effort to negotiate at the appraised value and submit written justification for the higher price based on reasonableness, prudence, public interest, additional or updated appraisals, estimated condemnation/trial costs, and/or valuation.
    - If the Appraisal is not available at the time of the application, applicant may submit a good-faith estimate of the cost of the project based on market value or an agreement with the willing seller. If the project is selected for funding, the amount of the grant cannot exceed the estimated cost in the project application.

k. Evidence that the proposed future deed holder is qualified to hold a conservation easement over the proposed parcel(s)
l. Statement of the applicant's willingness to comply with all federal, state and local laws, regulations, and policies

II. General Information

a. CLMU staff will perform all site evaluations.
b. A Phase 1 Environmental Assessment of the nominated property may be required.
c. The applicant must ensure that the required nonfederal match is available for all acquisitions nominated to the federal CELCP program. Nonfederal match may come from state and/or local governments, sponsoring or partner non-governmental organizations, and/or sources such as land trusts or land conservancies.
d. CLMU will make the final determination of projects to be submitted for consideration in the competitive, federal CELCP program and will be responsible for developing all nomination packages for submission to NOAA.
e. The eligible applicant will hold title to the respective property acquired through the CELCP program
f. The eligible applicant and the CLMU will hold duplicate documentation as required by the federal CELCP guidance.
g. All properties acquired under this program will be maintained in accordance with applicable state laws. Any revenues generated will be used by the

applicant to continue the long-term stewardship of the properties in accordance with the established management plan.

h. The property boundary of the project must lie entirely within the CECLP boundary.
i. Conservation easements must be placed on selected properties for perpetuity. Easement language and terms must be consistent with easement language used by the MDEQ for other acquisition projects under the Great Lakes Coastal Restoration Grant Program and NOAA.
j. Landowners who do not wish to sell their property and who plan only to place a conservation easement over the parcel must also use easement language and terms consistent with those used by the MDEQ for other acquisition projects under the Great Lakes Coastal Restoration Grant Program and NOAA. Written expression of this understanding with the landowner must be provided with the application.
k. A tract specific management plan must be developed within two years of the purchase and/or placement of a conservation easement of all properties so obtained.

Appendix J:
Project Ranking Factors and Scoring Guidance

I. Importance and/or relevance of proposed project to the program goals. (50 points)

This factor ascertains the level of ecological, conservation, recreational, aesthetic, historical/cultural value of the proposed project and the public benefits gained from the long-term protection and management of the property.

Projects are reviewed and ranked according to the degree to which they:

- *Protect important coastal, and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values. Projects will be ranked according to the degree to which they support their primary purpose (whether conservation, recreation, ecological, etc.), as well as the degree to which they contribute other values.*
- *Advance the priorities within a state's approved Coastal and Estuarine Land Conservation Plan and the goals, objectives, or implementation of the state's coastal management plan approved under the CZMA, a NERR management plan approved under the CZMA, or regional, state or local watershed protection plan.*

Priority is given to projects that:

- *protect lands with significant ecological value, and*
- *advance the priorities within a state's approved Coastal and Estuarine Land Conservation Plan [and/or the goals, objectives, or implementation of the state's coastal management plan].*

Projects are ranked according to their primary purpose, such as ecological value, and receive additional credit each of the secondary values it provides, such as recreational, historic, etc.

Evaluation/Scoring Guidance for Evaluation Factor #1 -

** To what degree does the property protect important coastal, and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values?*
** To what degree does the project directly advance the priorities within a state's approved Coastal and Estuarine Land Conservation Plan and the goals objectives, or implementation of the state's coastal management plan approved under the CZMA, a NERR management plan approved under the CZMA, or a regional or state watershed protection plan).*

a) **Primary purpose of the project**
What is the project's primary purpose as specifically described in the application? *Check one.*

___ Conservation ___ Historical
___ Recreation ___ Aesthetic
___ Ecological

For questions 1.b through 1.f, rank each project for its primary purpose identified above and for the four remaining CELCP values. For example, if a project's primary purpose is protection of ecological values, use the column marked "If primary purpose" for question 1.d; use the column marked "If secondary purpose" for the remaining values in 1.b, 1.c, 1.e, and 1.f.

If primary If secondary

	purpose:	purpose:
b) Assessment of conservation value (up to 20 points)	**(up to 20)**	**(up to5)**

The conservation value of the proposed acquisition is best described as:

High 11-20 4-5

The property may be a keystone acquisition within a larger conservation plan; perhaps it has high biological diversity, aesthetic qualities and recreational opportunity. A high priority acquisition may also have a demonstrable link to water quality maintenance or improvement

Medium 4-10 2-3

Some conservation elements are present, but the tract's significance is not defined by these elements. Perhaps portions of the property are old field and require significant restoration

Low 0-3 0-1

In the opinion of the reviewer, the site is not a significant conservation candidate or conservation elements are not present

Score: ____

c) Assessment of recreation value (up to 20 points) (up to 20) (up to 5)

The recreation value of the proposed acquisition is best described as:

High 11-20 4-5

The property provides significant opportunity for public access to coastal resources, particularly in areas of determined need.

Medium 4

Recreation and public access opportunities exist on the property, yet the need for additional public access is not high in the area served; or, the site provides limited access opportunities (i.e. only guided tours, seasonal access, etc.).

Low 1

Opportunities for recreation/public access opportunities are very limited or absent on the site, perhaps due to protection of threatened and endangered species.

Score: ____

d) Assessment of ecological value (up to 25 points) (up to 25) (up to 7)

(*Note: Ecological receives a higher weighting, per the statutory authority for the program*)

The ecological value of the proposed acquisition is best described as:

High 16-25 5-7

The tract exhibits exceptional, natural habitat quality, species diversity, invasive/exotic species presence is minimal, Federal or state-listed threatened or endangered species are or may be supported on the tract, the tract contributes to ecological corridor connections, etc

Medium 6-15 3-5

The tract exhibits moderate natural habitat quality or species diversity, has high quality habitat on a small portion of the site, or has high potential ecological value, yet restoration effort is needed, etc.

Low 0-5 0-2

Biological or ecological parameters not significant; property's primary strength is recreation, historic, aesthetic, or other conservation value.

Score: ____

e) Assessment of historic values (up to 20 points) (up to 20) (up to 5)

The historic value of the proposed acquisition is best described as:

High 11-20 4-5

The tract contains significant national historical, cultural or archaeological features that are designated as a National Historical Landmark or are listed on the National Register of Historic Places or State Register of Historic Places.

Medium 4-10 2-3

The tract contains historical, cultural or archaeological features that have potential for designation as a National Historical Landmark or listing on the National Register of Historic Places or State Register of Historic Places

Low 0-3 0-1

The site contains evidence of features that have not been formally evaluated to receive designation, or the site does not have evidence of historically or culturally significant features.

Score: ____

f) Assessment of aesthetic value (up to 20 points) (up to 20) (up to 5)

The aesthetic value of the proposed acquisition is best described as:

High 11-20 4-5

Scenic vistas abundant on the site throughout year, complements nationally designated scenic byway or trails programs

Medium 4-10 2-3

Scenic vistas present, but more limited; may be seasonally significant rather than year round; supports local or state scenic route or trail programs

Low 0-3 0-1

Limited scenic or aesthetic quality at time of purchase; although restoration potential may exist

Score: ____

g) Relevance to CELCP Plan (up to 5 points)

Does the proposal clearly explain whether the project is an integral part of a priority/project area described in a state's approved CELCP plan?

Yes 5

Application clearly demonstrates that the proposed project addresses a priority area identified in a state's approved CELCP plan

No.....0

State does not currently have an approved CELCP plan and/or application does not clearly demonstrate that the proposed project addresses a priority area identified in the state's approved CELCP plan

Score: ____

h) Contributions to other state/local plans (up to 5 points)

Does the proposal clearly explain whether the project contributes to the resource management goals or conservation priorities identified in a state's coastal zone management plan approved under CZMA, NERR management plan approved under CZMA, or other regional or state watershed protection plan?

	Yes	No
Project contributes to a state's coastal management plan and/or NERR management plan approved under the CZMA	2	0
Project supports a regional and/or state watershed planning effort	2	0
Project supports a local watershed planning effort	1	0

Score: ____

II. Technical/Scientific Merit (up to 25 points)

This evaluation factor ascertains whether the approach is technically sound and/or innovative, if the methods are appropriate, and whether there are clear project goals and objectives.

Projects will be reviewed and ranked according to the degree to which they:

- *Are threatened by conversion from their natural or recreational state to other uses;*
- *Can be effectively managed and protected over the long-term (in terms of land stewardship and/or restoration) to conserve their ecological, conservation, recreation, aesthetic, or historical/cultural values;*
- *Can be executed within the performance period.*

Priority will be given to projects that can be effectively managed and protected.

Evaluation/Scoring Guidance for Evaluation Factor #2 -

a) Manageability – Land perspective (up to 8 points)

To what degree can the site be effectively managed and protected over the long-term to conserve its ecological, conservation, recreation, aesthetic, or historical/cultural values?

High 6-8

Land is currently in the desired state consistent with the intended purpose(s), (e.g. land with ecological value does not require restoration, control of non-native species, or remediation), and surrounding land uses are compatible with long-term conservation of the site's values.

Moderate 3-5

Current condition of the site is consistent with conservation goal but has some impacts, such as from previous management activities, non-native species, etc., and will require some active management or minor restoration to achieve desired state.

Low 0-2

Land has been converted or actively managed historically in a manner not consistent with long-term conservation goals and/or contains hazardous materials or contamination that have not been removed/ remediated. Restoration will be necessary and arduous.

Score: ____

b) Long-term use of the site (up to 7 points)

To what degree are proposed long-term uses of the site compatible with long-term conservation of the site's ecological, conservation, recreation, aesthetic, or historical/cultural values?

High 6-7

Proposed uses of the site (or portion of site being acquired with CELCP funds) are compatible with the primary purpose for which the land is being protected and will maintain or improve the ecological, conservation, recreational, historic, or aesthetic values present on the site.

Moderate 3-5

Existing uses will be continued or new activities are proposed on the site that are generally consistent with the primary purpose for which the land is being protected, and will not result in additional impacts to the values present on the site or result in conversion of lands from their natural or recreational state to other uses.

Low 0-2

Existing uses or proposed uses of the site are likely to result in additional impacts to the values present on the site or conversion of lands from their natural or recreational state to other uses.

Score: ____

c) Threat of Conversion (up to 5 points)

To what degree is the property threatened by conversion from its natural or recreational state to other uses?

Imminent 4-5

The proposed tract has development plans that have been approved by local governing body and regulatory agencies and the owner has received an offer to purchase.

Moderate 2-3

The proposed tract has development plans that have been approved by local governing body and regulatory agencies; and/or regional development trends are high and property on the market (listed for sale).

Low 0-1

Site has development potential, but development plans have not been approved for the tract; regional development trends do not indicate a high development threat, or much of site is not readily developable (e.g., wetlands, steep slopes, no infrastructure).

Score: ____

d) Project Readiness – (up to 5 points)

Does the project have clearly stated goals and objectives that can be achieved during the performance period?

High 4-5

Site(s) have been identified, negotiations with landowner have resulted in purchase/sale agreement; appraisal, title opinion, and other documentation have been completed.

Moderate 2-3

Site(s) have been identified, property is on market and/or discussions with landowner are likely to result in a purchase/sale agreement; appraisal, title opinion and other documentation can be produced within award period.

Low 0-1

Preliminary contacts with landowner have been made and discussions are underway; or site has uncertainties (willingness to sell, litigation, or other liens or judgments, etc.) that are not likely to be resolved within the award period.

Score: ____

III. Overall Qualifications of Applicants (10 points) –

This evaluation factor ascertains whether the applicant possesses the necessary education, experience, training, facilities, and administrative resources to accomplish the project. Specifically, projects will be evaluated according to the degree to which they can be effectively managed and protected over the long-term in terms of the applicant's capacity (staffing, resources, authority and expertise) to implement the project (complete the acquisition) and manage property for long-term conservation of coastal and estuarine lands consistent with CELCP guidelines and state coastal management program policies.

Evaluation/Scoring Guidance for Evaluation Factor #3 -

a) Ability to Acquire Land– Agency perspective (up to 5 points)

Does the applicant have the proven capacity and experience, based on available funding, staff, authority and expertise, to execute the land transaction consistent with CELCP guidelines?

High 4-5

CELCP recipient has funding, personnel, expertise, legal authority and demonstrated success for acquiring lands, or interests in lands, for long-term conservation purposes.

Moderate 2-3

Funding or personnel appears to be limited; and/or state or local recipient appears to have a high caseload relative to resources;

Low 0-1

Applicant has not identified, or reviewer is concerned that applicant does not have, the personnel, funding resources, or authority to execute the project or to provide necessary assurances for long-term conservation.

Score: ____

b) Ability to Manage Land– Agency perspective (up to 5 points)

Does the applicant have the proven capacity and experience, based on available funding, staff, authority and expertise, to manage property for long-term conservation of coastal and estuarine lands consistent with CELCP guidelines?

High 4-5

Applicant has funding and personnel or a partnership/stewardship agreement in place to manage new tract and has demonstrated success in managing other properties for conservation purposes

Moderate 2-3

Funding or personnel appears to be limited; and/or state or local recipient appears to have a high caseload relative to resources; funding, partnerships or stewardship agreements have been tentatively identified.

Low 0-1

Applicant has not identified, or reviewer is concerned that applicant does not have, the personnel or funding resources to accommodate the needed management of the tract.

Score: ____

IV. Project Costs (up to 20 points)–

This evaluation factor determines if the project budget is realistic and commensurate with the project needs and timeframe. Specifically, the budget is evaluated to determine if land acquisition costs are based on an independent appraisal or other assessment of fair market value, if the source of matching funds is consistent with CELCP guidelines and is likely to be available within the performance period, and if direct and indirect costs for implementation of the project are reasonable and consistent with CELCP guidelines.

Evaluation/Scoring Guidance for Evaluation Factor #4 -

a) Land acquisition costs (up to 10 points)

Are land acquisition costs based on an independent appraisal or other assessment of fair market value? Do the costs account for any continuing streams of revenue derived from ongoing uses of the property or will such revenues be applied to long-term stewardship of the property?

Yes 8-10

Acquisition costs are based on an independent appraisal (conducted within a specified timeframe?). Project costs account for continuing streams of revenue derived from ongoing uses of the property.

Somewhat..... 4-7

Acquisition costs are based on other assessment of fair market value.

No..... 0-3

Acquisition costs are not based on either an appraisal or other assessment of fair market value.

Score: ____

b) Matching funds (up to 7 points)

Are the sources of matching funds reasonable, consistent with CELCP guidelines (cash contribution, donated land or land value from properties with similar coastal and estuarine attributes, and in-kind services such as restoration), and likely to be available within the performance period? Are there any sources that appear inconsistent (such as Federal funds, funds previously used or proposed for use to match another Federal grant, mitigation funds)?

Yes 5-7

Source of matching funds has been identified, are consistent with CELCP guidelines, and will be readily available at the time of closing or by the end of the award's performance period

Somewhat..... 3-5

Source of matching funds has been identified and appear consistent with CELCP guidelines, but it is difficult to determine whether costs are reasonable (e.g., value of in-kind services, applicant has not provided documentation for donated land or land value). Matching funds are contingent on receipt of other non-Federal funding (such as state or

local bond funds), agreement with owner of "donated land", or otherwise subject to uncertainty of availability at the time of closing or by the end of the award's performance period

No..... 0-2

Reviewer is concerned that source of matching funds is not consistent with CELCP guidelines.

Score: ____

b) Other costs (up to 3 points)

If associated costs for executing the land transaction, such as appraisal, title opinion, site assessment, etc., are requested, do they appear reasonable for the scope of the project? Are requested funds for salaries and fringe benefits only for those personnel directly involved in implementing the proposed project?

Yes 2-3

Associated costs appear reasonable for the scope of the project; Funds for administration are directly related to the project.

No..... 0-1

Direct costs appear high for the scope of the project; Funds for administration do not appear to be directly related to the project.

Score: ____

SUMMARY TABLE FOR PROJECT SCORING –

	If primary purpose ***(Up to… pts)***	If secondary purpose ***(Up to... pts)***	Project Score ***(for reviewers)***
Project Purpose (55 pts max):			
Conservation value	20	5	
Recreation value	20	5	
Ecological value	25	10	
Historic value	20	5	
Aesthetic value	20	5	
Relevance to strategic (*e.g.* CELCP) plans	10		
Technical/scientific merit (25 pts max)			
Manageability – land perspective	8		
Long-term use of the site	7		
Threat of conversion	5		
Project readiness	5		
Qualifications of Applicants (10 pts max)			
Ability to acquire land	5		
Ability to manage land	5		
Project Costs (20 pts max)			
Land acquisition costs	10		
Matching funds	7		
Other direct and indirect costs	3		
TOTAL POINTS POSSIBLE:	110	110	

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